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ADJUSTABLE FRAME FOR HOLDING PAINT ROLLER

BACKGROUND OF THE INVENTION

Field of the Invention:

The present invention relates to frames for supporting rollers having cylindrical bodies and being able to roll, and particularly, the present invention relates to a frame for supporting a paint roller for coating a pigment or a paint on a wall surface of a building or furniture, etc.

Description of the Prior Art:

Usually a frame for supporting a paint roller has a pair of arms with generally symmetrical bent shapes. Each of the arms has its distal part generally in parallel to the other and a shaft on the distal end to insert into the hole on one of the two ends of the paint roller to support it for rotation. Each of the arms also has its joint part fixed to or formed into a T-shape joint with a handle. The pair of joint parts form a fixed length, *i.e.*, an unchangeable distance between the two ends of the pair of shafts, which means that the frame can clamp and hold only one longitudinally sized paint roller. That is to say that the prior art frame is not capable of fitting and holding a variety of longitudinally sized paint rollers, which results in an inconvenience in the operation of various paint rollers.

SUMMARY OF THE INVENTION

Having outlined the state of the prior art and its attendant shortages, the present invention's object is to provide an adjustable frame that is capable of adjusting the holding length of the frame to support and clip a wide variety of longitudinally sized paint rollers, moreover, the adjustment is flexible and the clipping force is strong.

The present invention provides an adjustable frame for holding a paint roller. The frame comprises a pair of square arms having uniform bent shapes and are configured symmetrically. Each of the square arms includes a distal part that is opposite to the other distal part, a joint part that is assembled opposite to, and in line with, the other joint part, a pair of shafts that are opposite to each other and are respectively fixed at the ends of the distal parts for inserting into the holes on the two ends of the paint roller, and a pair of racks that are opposite to each other and are respectively fixed at the ends of the joint parts. A square tube is straight, holds the pair of joint parts respectively through its two ends, and holds the pair of racks into its internal space accordingly. The pair of racks mesh with a gear wheel, across the gear wheel, within the internal space of the square tube. A tee-joint holds the square tube. Both the square tube and the tee-joint have a pair of bearing holes through their walls. The pair of bearing holes hold up a bar, to which the gear wheel is fixed. At least one knob is fixed to one of two ends of the bar, outside the wall of the tee-joint.

The adjustable frame for holding a paint roller of the present invention allows an operator to freely adjust the holding length formed by the joint parts of the square arms that are fitted into the square tube's internal space respectively through the square tube's two ends. By rotating the knob, through the bar and gear wheel, the racks move and consequently draw the distal parts away from, or close to, each other. The operator can

change the holding length of the frame, *i.e.*, the distance between the two ends of the pair of shafts and fit the pair of shafts tightly against any paint roller of different lengths. In other words, the present invention provides a holding-length adjustable frame that is capable of flexibly and tightly clamping and holding a variety of longitudinally sized paint rollers.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a schematic front view of an adjustable frame for holding a paint roller according to the present invention;

FIG. 2 is a sectional view of the adjustable frame including a tee-joint, a gear wheel, a pair of racks, joint parts and joint ends of a pair of square arms, a square tube, and one fastening set; and

FIG. 3 is a partially sectioned side view of the adjustable frame with a handle.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

As shown in **Figures 1**, **2**, and **3**, an adjustable frame for holding a paint roller comprises a pair of square arms **2** and **4** having uniform bent shapes. Each of the pair of square arms **2** and **4** includes a distal part that is in parallel to the other distal part, a joint part that is assembled opposite to, and in line with, the other joint part, a pair of shafts **3** that are opposite to, and in line with, each other and are respectively fixed at the ends of the distal parts for inserting into the holes on the two ends of the paint roller *(not shown)*, and a pair of racks **8** and **12** that are opposite to each other and are respectively fixed at the ends of the joint parts. A square tube **1** is straight, holds the pair of square arms **2** and **4** respectively through its two ends, and holds the pair of racks **8** and **12** into its internal space accordingly. The pair of racks **8** and **12** mesh with a gear wheel **9**, across the gear wheel **9**, within the internal space of the square tube **1**. A tee-joint **7** holds the square tube **1**. Both the pair of square arms **2** and **4** and the tee-joint **7** have a pair of bearing holes through their walls. The pair of bearing holes hold up a bar **9'**, to which the gear wheel **9** is fixed. One knob **9"** is fixed to one of two ends of the bar **9'**, outside the wall of tee-joint **7**.

The racks **8** and **12** are fixed respectively at the ends of the joint parts with screw fasteners **13** and **14**.

The adjustable frame also comprises a pair of fastening sets that are configured respectively at the two ends of the square tube **1**. Each of the pair of fastening sets includes an inner pipe **5** having male threads on its outer wall and an outer pipe **6** having female threads on its cone-shaped inner wall. The inner pipe **5** holds both the square tube **1** and the joint part of an associated square arm **2** or **4**. The outer pipe **6** fits the inner pipe **5** to enhance the holding force between the square tube **1** and the joint part of the associated square arm **2** or **4**.

The tee-joint **7** includes a screw socket **15** having female threads on its inner wall to couple with a handle **11** and has male threads on its cone-shaped outer wall to couple with a screw tube **10** having female threads on its inner wall.

Before or after a coating operation, the operator may loosen the outer pipe **6** from the inner pipe **5** by rotating it, then rotate the knob **9"** and consequently the gear wheel **9** moves the pair of racks **8** and **12** to bring the pair of ends of the pair of shafts **3** away from, or close to, each other in order to adjust the holding distance between the pair of shafts **3**. By using the above adjustment, the operator can tightly fit a new paint roller having a different length from the replaced one on the frame, and then rotate the outer pipe **6** on the inner pipe **5** to tighten the inner pipe **5** for enhancing the coupling force between the joint parts of the pair of square arms **2** and **4** and the square tube **1**. The operator may also fix a handle **11** into the screw socket **15** and further tighten it with the screw tube **10**.